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Capital Structure and Industrial Performance in Nigeria (1999-2007)

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Abstract: The study examined the impact of capital structure on industrial performance in Nigeria. A study of five (5) quoted firms between 1999 2007 was considered. The study employs the use of panel data regression model. The variables used are debt financing, equity financing, debt – equity ratio as well as Profitability index which measure firms' performance.

The findings of the study showed a positive relationship between firms' performance and equity financing and also a positive relationship between firms' performance and debt-equity ratio. A negative relationship exists between firms' performance and debt financing. This is due to high cost of borrowing in the country. In view of the stated fact, the study suggests better use of borrowed funds and emphasizes the importance of efficient management.

Key words: Capital; Structure; Industry; Performance; Nigeria; 1999-2007

INTRODUCTION

Capital structure has to do with the ways in which funds needed for business activities are sourced for. Financial markets serve the purpose of allocating savings efficiently to ultimate users in an economy. If the savings economic units were the same with investment economic units, an economy could still progress without financial assets. In reality, however, the economic units, which mostly invest in real assets, spend more than their total savings for that purpose, while other units like the households have total savings in excess of total investment.

The greater the divergence of the pattern of savings and investment among economic units, the more the need for efficient financial market to channel savings to ultimate users. Financial markets ensure that the ultimate investors in real assets and the ultimate saves are brought together at the least possible cost and convenience.

Efficient financial markets are necessary to bring about adequate capital formation and economic growth in an economy. If there were no financial assets other than money, each economic unit could invest only to the extent that it saved. Without financial assets, then, an economic unit would be greatly constrained in its investment behaviour. In the absence of external financing, economic units that lacked sufficient savings would have to postpone or abandon money worthwhile investment opportunities.

Savings in such a system may not be channelled to the most promising investment opportunities, and capital would be less than optimally allocated. Economic units that lacked worthwhile investment projects

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would have no alternative but to allocate money. Similarly, economic units with very bright investment opportunities might not be able to accumulate sufficient savings rapidly enough to undertake the project. This therefore, suggests the need for ability to issue financial assets in an economy.

Also, we see that capital structure is much more encompassing in the sense that it concerns itself with ways that those who are after the good interest of the firm are protected from measures that managers and other people might take which will jeopardise their interests. This is real, because what we see in a typical firm in this millennium period is that ownership is differentiated from management. A shareholder will control only as much as a minute portion of ownership and might not be that interested in the management decision of the firm which is not all the time profit aimed and this conflicts with that of the shareholders.

As a concept, corporate capital structure is recognised as a sort of structure with which business firms receive direction and orientation concerning their business activities (Rwegasira 2000). On the other hand, (Sullivan 2000), sees it as the heart of both a market economy and the democratic society. The latter is a wider concept of view as when compared to the former. The narrow view perceives corporate capital structure as being related to issues like management control, shareholders' protection, but Sullivan (2000), sees it from the problems privatisation has brought in the developing countries of which capital formation is paramount.

On more general grounds, corporate capital structure is seen to be a collection of organised financial institutions that deal in financial instruments and assists business firms in sourcing for funds, basically, medium and short term loans. Instruments traded include bonds, debentures and stocks. Under the capital structure, financial firms claims can be categorised into equity and debt instruments, the owner of equity instruments are stockholder while the holders of debt claims are creditors to the firm. Capital structure is also said to be the performance financing of the firm.

Any business organisation that opens up itself to external finance is prone to risks. In this study, we are more concerned with financial risks, which is associated with the introduction of debt financing into capital structure of the firm. Financial risk to stockholder is based on the debt to equity ratio. In funds sourcing, it is possible, it is between the financier and the firm, but when a third party surfaces, it then, become a leveraged financing.

The case whereby a firm's creditor has access or claims on the earnings of the firms, opens up the firm to more risks while a firm in which the creditor has no claim on the firm's earnings reduces its risks. But now, the first firm, that is, the levered firm would have a reduction in expected values of earnings where the second firm which is the unleavened firm will anticipate much more increase in earnings. The basic problem areas of this study, therefore, will be to find out if levered firms are susceptible to lower expected values of earnings or not. Based on the assertion of the possibility of financial risks in firms, this paper broadly investigates the impact of capital structure on industrial performance in Nigeria, while specifically examines;

(1) The effect of debt financing on industrial profitability in Nigeria.

(2) The effect of equity financing on industrial profitability in Nigeria.

(3) The effect of debt-equity ratio on industrial profitability in Nigeria.

This study is important because financial resources are paramount in the running or performance of any business enterprise. It will provide recent evidence on the debate of capital structure paradigm and the relevance of the capital structure and the firm's theory in the Nigerian context.

REVIEW OF RELATED LITERATURE

Concept of performance measure in a capital structured firm

Tian et al (2007), explains the concept of performance as a controversial issue in the finance strategy of most corporate organisations due to its multidimensional meanings. Research on firm performance emanates from organisation theory and strategic management. (Murphy et al, 1996).

Performance measure could be in form of financial or organisational performances such as maximizing profit on assets, profit maximization, and maximizing shareholders' benefits. These are at the core of the firm's effectiveness. (Chakravarthy 1986). Operational performance such as growth in sales and growth in market share, provide a broad definition of performance as they focus on the factors that ultimately lead to financial performance (Hoffer and Sandberg, 1987).

Profit efficiency is superior to cost efficiency for evaluating the performance of managers. This performance measure is more embraced because it seeks to raise revenue against minimum costs, hence, controlling costs to its barest minimum.. It seems reasonable to assume that shareholders losses from agency costs are close to proportional the losses of accounting profits that are measured by profit efficiency.

Some Theoretical and Empirical Explanations

The static trade off theory explains the concept of capital structure from the optimum point of view, that is optimum requires a trade off, for example between the tax advantages of borrowed money and the cost of financial distress when the firms find out it has borrowed too much.

A value maximising firm would equate benefit and cost at the margin, and operate at the top of the curve. In the figure 1, below the curve would top out at relatively high debt ratios for safe, profitable firms with plenty of taxes to shield and assets whose values escape serious damage in financial distress. Static trade off theory quickly translates to empirical hypothesis.

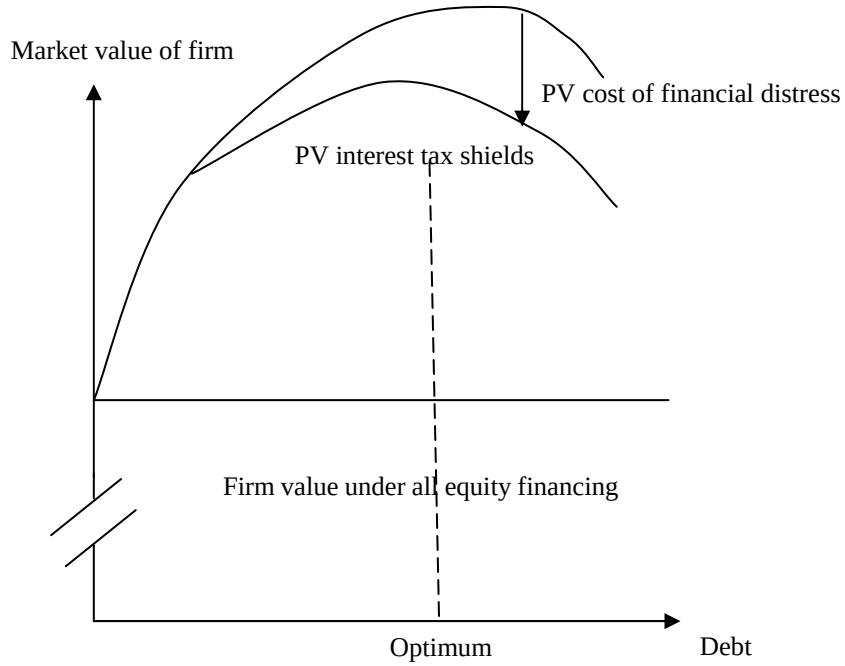

Figure 1

Also in the same figure 1: the static trade optimum of optimal debt capital structure assumes that firm balances the marginal present value of interest tax shields against the cost of financial distress.

Other studies provide more direct evidence that firms adjust towards a target debt ratio. Taggart (1977), Marsh (1982), and Opler and Titman (1994) find mean reversion in debt ratios or evidence that firms appear to adjust toward debt targets. Static trade off theory suggests that if companies did have well–defined optimal debt ratios, it seems that their managers were not interested in getting there.

Another important theoretical explanation to capital structure-performance relationship is the agency theory which emphasises the role of asymmetric information because owners of companies do not have access to full information on performance or the reason for underperformance. The separation of ownership

and control, which is one of the core principles of the theory, occurs as a result of the introduction of external investors, and which eventually allow managers to represent the interest of the external owners. This implies that the managers in most cases are not interested in choosing the capital structure, that is, financial leverage that best maximizes the wealth of the shareholders rather, they are interested in maximizing their own welfare. Allen (2002).

One of the main factors that influence firm's performance is the existence of capital structure. Since bankruptcy cost exists, deteriorating returns occur with further use of debt in order to get the benefits of tax deduction. Therefore, there is an appropriate capital structure beyond which increases in bankruptcy cost are higher than the marginal tax sheltering benefits associated with the additional substitution of debt for equity.

Studies on Nigeria have established that institutionalized savings increased substantially with the interest rate liberalization (Ndekwu, Soyibo and Adekanye, 1992). This shift in policy was prompted by several factors. First, the economic shocks of the 1970s and early 1980s underscored the limitations of regulations on interest rates and credit. Second, the need for rapid economic development in most third world countries of which Nigeria is one was becoming clear and urgent with the dwindling tax revenue coupled with external aids (Oyejide 1972). Consequently, a large proportion of recent writings about financial policies have also been on the theme of liberalization (Olashore 1991, Soyode 1991, 1992).

Harris and Raviv (1991), argued that capital structure is related to the trade – off between costs of liquidation and the gain from liquidation to both shareholders and managers. So, firms may have more debt in their capital structure than is suitable as it gains benefits for both shareholders and managers. Krishnam and Moyer, (1997) found a negative and significant impact of total debt to total equity (TD/TE) on return on equity (ROE). Another study by Gleason, Mathur and Mathur, (2000) found that firms capital structure has a negative and significant impact on firms performance measures, return on assets (ROA), growth in sales (G sales), and pre tax income (P tax). Therefore, high levels of debt in the capital structure would decrease the firm's performance. (Kest, 1986).

Titman and Wessels (1988) and Rajan and Zingales (1995) find strong negative relationship between debt ratios and past profitability. Models based on trade off of tax benefit, debt and the cost of financial distress predicts a positive relation.

METHODOLOGY

Based on the cross sectional nature of the study and also in line with the theoretical foundation of Robert (2003) and Yoshio and Toshiyuki (2005), the model considered in this section is the fixed effects model. A functional relationship is postulated between profitability (p), debt financing (DBT), equity financing (EQT) and debt to equity ratio (D/E) over the period. The panel model for the study is specified thus:

P = (DBT, EQT, D/E); such that

$Pit = \alpha_0 + \alpha_1 DBT_{it} + \alpha_2 EQT_{it} + \alpha_3 D/E_{it} + \mu_{it}$

From the above specified model,

P = profitability over the period

DBT = Debt over the period

EQT = Equity over the period

D/E = Debt equity ratio over the period

μ= stochastic error term

i = cross section dimension and ranges from 1 to N

t = Time series dimension and ranges from 1 to T

α_1 α_2 and α_3 are the parameters estimated.

The entire explanatory variables in the model are expected to impact positively on the dependent variables which is profitability. Hence, the following apriori expectation exists,

$\alpha_1 > 0$; $\alpha_2 > 0$ and $\alpha_3 > 0$

Data identification and sources

The variables used are profitability, debt financing, equity financing and debt to equity ratio. The data for the variables were obtained from various issues of the Nigerian Stock Exchange Fact book in line with the period under review (1999 – 2007).

The firms' selection criteria were based on the years of existence and experience of firms, consistency, number of employees, qualities of products among others. The firm so chosen comes under breweries (Guinness Nigerian plc), building materials (Cement Company of Northern Nigeria), industrial and domestic products (First Aluminium Nigeria Plc), printing and publishing (Longman), and textile (United Nigeria Textiles Plc) among others.

RESULTS AND DISCUSSION

The Fixed Effect Common Sample Model

In fixed effect model (FEM), the intercept in the regression model is allowed to differ among individual firms in recognition of the fact that each individual firm or cross sectional unit may have some special characteristics of its own. It takes into account differing intercepts, that is, the five firms have different intercepts but a constant slope.

The regression model is expressed below:

$$Y_{it} = \beta_1 + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \mu it$$

Notice that we have put the subscript (i) on the intercept (i.e. β_{ii}), suggesting that the intercepts of the five(5) firms may be different

$$P_{it} = \beta_1 + \beta_2 D_{it} + \beta_3 E_{it} + \beta_4 DE_{it} + \mu_{it}$$

$i = 5(1,2,3,4,5)$

$t = 9(yr1, yr2, yr3, yr4, \ldots, yr9)$

where

P = profitability over the period

D = Debt over the period

E = Equity over the period

DE = Debt equity ratio over the period

β_1 = intercept

β_2, β_3 and β_4 = slope coefficients

μ= stochastic error term

i = cross section dimension and ranges from 1 to N

t = Time period (time identifier)

Result of the fixed effect model

Variable	Coefficient	Std.Error	t-statistic	Probability
D?	-0.040657	0.143198	-0.283920	0.7781
E?	0.389768	0.047631	8.183063	0.0000
DE?	407776.6	327953.4	1.243399	0.2215

GUN ……..C –1904273 CEM……C –272797.7

FAN……C -374318.7 LNG……..C -75798.49

UNT……C -2588627 R Squared 0.888514

Adjusted R Square 0.867422 Durbin – Watson statistic 1.338274

F-statistic 147.4405 Prob (f-statistic) 0.000000

Since all the five(5) firms are having different intercepts, the regression result is expressed below, having different equation for each firm.

P–GUN =-1904273 –0.040657D_GUN +0.389768E_GUN +40776.6DE_GUN

P_CEM = -272797.7-0.0406257D_CEM +0.389768E_CEM +407776.6DE_CEM

P_FAN = -374318.7-0.0406257D_FAN +0.389768E_FAN +407776.6DE_FAN

P –LNG = -75798 .49 – 0.0406257 D-LNG + 0.389768E –LNG + 407776.6DE - LNG

P_UNT = -2588627-0.0406257D_UNT +0.389768E_UNT +407776.6DE_UNT

N=45, Df = 41

The fixed effect common sample model

The fixed effect assumes a different intercept for all the individual firms but a constant slope coefficient for all the firms. These differences in the intercepts may be due to the unique features of each company or firms such as differences in management style, products or managerial talent.

The intercepts of all the firms are negative GUN (-1904273), CEM (-272792.1), FAN (-374318.7), LNG (-75798.49) and UNT (-2588627) respectively, meaning that without debt financing(D), equity financing (E) and debt equity ratio (DE), the profitability of all the five firms considered in this study will be negative.

Debt financing (D) is negatively related to profitability of the firms as it was assumed that the slope coefficient is constant across firms. This is in agreement with Tian et al (2007). When debts become relatively high, further increasing generate significant agency of bankruptcy or financial distress between bondholders and shareholders. This is than reflected as the negative relationship. The value of debt financing is –0.040657, meaning that a unit increase in debt financing will pull down the profit of the shareholders by 4% (percent).

Equity financing existed a positive coefficient of 0.389768 across the firms, that is, equity financing is positively related to profitability of the firms considered in this study. It then implies that an increase on equity financing of the firms, the profitability of the firms will increase by about 40 percent. It therefore, explained that shareholders of the firms tend to maximize more profit through equity financing. It is therefore, perfectly significant.

The financial ratio which is the debt equity ratio is positive with a value of 441523.5; it explained that there is a positive relationship between debt equity ratio and profitability across the firms under investigation. An increase on debt – equity financing will bring about 441523.5 units increase in profit for the firms.

The R-squared values is 0.888519, meaning that about 89 percent total variation in profitability is accounted for by debt financing, equity financing and debt-equity ratio under taken by the firms, while less than 11 percent is accounted for by the stochastic error term or variables excluded from the model. The F-statistic is on a high side with a value of 147.4405 and a P-value of 0.00000 indicating that all the parameters are statistically significant. This is in line with the static trade –off theory. The Durbin –Watson statistic value is 1.338274. By comparing this value on the Durbin-Watson Statistical table, it was detected that there is a slight positive autocorrelation in the data which could be due to specification of errors.

CONCLUSION

This paper seeks to examine the impact of capital structure on industrial performance in Nigeria. Profitability is used as the yardstick for measuring the performance while the components of capital structure are debt financing, equity financing and debt-equity ratio among others.

Based on the panel data regression analysis used in this study, it was discovered that debt financing, equity financing and debt–equity ratios are significant factors that determine the profitability, used as a

proxy for performance of firms. So, it was deduced that equity financing played a better role than debt financing. However, it is clear that the combination of both have a significant effect on firm's performance.

Hence, for improvement in firms' performance, share of equity financing in the capital structure should be increased. Also, to avoid conflict of managers with shareholders interests, managers should go for long run value maximization of the firm which satisfies both managers and shareholders interest.

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